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HAZEN RESEARCH, INC.

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November 2, 1973

Mr. Eugene Knight,
Executive Vice President
Crystal Oil Company
P. O. Box 1101
Shreveport, Louisiana 71163

Dear Mr. Knight:

Mr. Hugh Bradford advised me early this week that Mr. Roberts was anxious to have some information about the Rico Argentine project before Wednesday of next week.

I visited Rico Wednesday and Thursday this week. The enclosed memorandum report is a summary which may be useful at this stage. I shall write a somewhat more detailed report covering both the leaching project and the exploration possibilities as soon as some additional data are available.

Sincerely yours,

John S. Holland

John S. Holland
Chief Geologist

JSH:mgp
Enclosure

PRELIMINARY REPORT ON THE DUMP LEACHING PROJECT AND MINERAL POTENTIAL OF RICO ARGENTINE MINING COMPANY

(HRI Project No. 1471

The property of Rico Argentine Mining Company amounts to over 3,000 acres surrounding the town of Rico in southwestern Colorado. The area has been an intermittent mineral producer from the 1870's to the present time.

The original discovery at Rico was of high grade gold and silver in narrow quartz veins. From discovery to about 1910 a number of mines were operated within a relatively small area called Newman Hill situated just southeast of the Rico townsite. These mines produced high grade ores which were hand sorted for direct shipment to smelters. The mine dumps which are now being considered for leaching are composed of low grade to barren vein filling and adjacent country rocks discarded during these early mining operations.

The veins were fissure fillings made up of quartz, lesser rhodochrosite, and minor amounts of galena, sphalerite and pyrite. The galena was agentiferous, but the ores were never silver-rich without argentite, proustite, polybasite and some native silver.

The fissure veins were generally narrow, the average width being about 6 inches and only rarely exceeding 18 inches.

Six dumps have been selected for leaching, namely:

Group dump	281,219 dry tons
Syndicate dump	78,251 dry tons
Newman dump	45,000 dry tons
Vestal dump	45,000 dry tons
Jumbo dump	22,500 dry tons
Enterprise dump	22,500 dry tons
	494,470

The Group and Syndicate dumps were surveyed in 1945 by plane table. The Group dump was sampled by two shafts, 60 feet and 78 feet deep, respectively to provide data on mineral content, moisture content and bulk density. At that time the interest in the dumps was as possible source of fines (minus 1/2 inch) for bulk flotation treatment to recover lead and zinc as well as the precious metals.

With about 359,000 tons of dump material reasonably assured from the two largest dumps, the goal of 400,000 tons of treatable material is readily obtainable. There are several other small dumps in the area which are presently believed to be too low grade, however, they may warrant treatment later.

The test leach pile consisted of 210.61 tons which came from five of the dumps, namely:

Dump	Tons	oz Au/T	oz Ag/T
Group	34.14	.01	1.8
Vestal	41.04	.01	1.4
Aspen	46.83	.02	4.2
Enterprise	46.10	.02	3.0
Syndicate	42.50	.03	3.8
	210.61		

Material from each dump was sampled as extracted. The material came from pits dug to about 18 inch depth at random points on each dump. A composite sample assayed .029 oz Au and 3.356 at one assay lab, and .01845 oz Au and 2.92 oz Ag at another.

The pile was leached for 62 days at which time it was still yielding 5 cents per ton per day. At this time the total metal recovery has not been determined as not all the carbon has been stripped. The leached heap has been sampled but assays were not available.

Preparation of a full scale 100,000 ton heap is underway. Most of the heap will come from the Syndicate dump from which about 15,000 tons has been hauled to a stockpile adjacent to the crushing plant.

The other aspect of the Rico Argentine Company looked into was its relative favorability for additional mineral occurrences.

Most of the lead-zinc-pyrite mineralization which was mined until the most recent shutdown in 1971 came from replacement bodies in limestone beds of the Hermosa formation. Only very little exploration has been carried into the underlying Leadville and Ouray limestones and that has been by a few widely spaced drill holes some of which show thick intersections of interesting values in lead, zinc, copper, gold and silver. This sequence could be prospected by drilling to moderate depths, 1,000 feet or less, over a considerable area in and around the townsite and to the south. The projection of the Newman Hill fissure veins into the Leadville-Ouray limestones would also provide a target area. In addition, the Leadville and Ouray formations have not been prospected below the lowest workings in the Argentine-Blaine area which is the easternmost productive portion of the Rico area.

The exploration targets noted above are for deposits which would require underground mining methods. Exploration for such targets is often difficult, slow and expensive. At first glance it seems reasonable to suggest that a minimum first stage program of record research, mapping, drilling and some experimental geophysical work might cost $250,000 to $300,000. It is worth noting that Exxon Company has staked a large area west of and adjoining Rico Argentine and it has been diamond drilling since early summer.